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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,363	11/25/2005	Yasushi Okubo	KON-2053	3845

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EXAMINER
HON, SOW FUN

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
09/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/558,363	OKUBO ET AL.	
	Examiner	Art Unit	
	SOPHIE HON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Withdrawn Objections

1. The objections to claims 4-12 and 15-17 are withdrawn due to Applicant's amendment dated 03/14/08.

Response to Arguments

Withdrawn Rejections

2. Applicant's arguments with respect to the rejections of claims 1-21 under 35 U.S.C. 102(e) and 35 U.S.C. 103(a) over Murakami (US 2003/0170482) as the primary reference have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejections are made in view of new prior art found.

3. Applicant's statement of common ownership in the response dated 03/14/08, has disqualified Okubo (US 2004/0150331) as valid prior art under 35 U.S.C. 103(c). Therefore, the rejections of claims 1-3, 5-7, 1-17, 19-21 under 35 U.S.C. 103(a) over Okubo have been withdrawn. However, upon further consideration, new grounds of rejections are made in view of new prior art found.

New Rejections

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. While it is clear in the specification that X denotes the degree of substitution by the acetyl group, it is not defined in the claim. Correction is required.

Claim Rejections - 35 USC § 103

5. Claims 1-3, 5-9, 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (US 2002/0123209) in view of Machell (US 5,219,510).

Regarding claim 1, Yamada teaches a transparent film for display substrate (displaying element, [0001]), containing: a cellulose ester, and no plasticizer (acetate propionate, [0110]) i.e. in a zero amount which is within the claimed range of less than 1 percent. Yamada teaches that the transparent film is drawn 6 percent (factor of 1.06, [0110]) in a lateral direction (transverse, [0110]), which is within the claimed range of 3 through 100 percent. Yamada fails to teach that the transparent film is also drawn 3 through 100 percent in a conveyance direction.

However, Machell teaches that a transparent film containing a cellulose ester is drawn from 50 to 100 percent (stretch ratio in both directions, column 10, lines 5-17),

which is within the claimed range of 3 through 100 percent, in both the lateral direction and the conveyance direction (transverse direction and direction of travel of the web, column 10, lines 5-11), for the purpose of providing the desired superior surface properties (column 10, lines 29-45) which include surface smoothness and optical uniformity as well as dimensional stability (column 2, lines 25-32) suited for a transparent optical substrate (photographic film support, column 2, lines 5-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have drawn the transparent film containing cellulose ester of Yamada in both the conveyance direction and the lateral direction, in order to obtain the desired superior surface properties which include surface smoothness and optical uniformity as well as dimensional stability, suited for a transparent optical substrate, as taught by Machell.

Regarding claims 2-3, Yamada teaches that the transparent film contains a hydrolyzed polycondensate of the cellulose ester and methyltriethoxysilane ([0110]), which is an alkoxysilane expressed by general formula (1) of Applicant wherein R of Applicant = R' of Applicant = a methyl group, which is a monovalent substituent, and n of Applicant denotes 3. The alkoxysilane moieties in the hydrolyzed polycondensate are expected to be inherently expressed by general formula (2) of Applicant. Yamada teaches that the total amount of the inorganic high molecular compound, or inorganic condensation polymer ([0049] is more preferably in the amount of 10 to 30 percent by mass in the transparent film ([0056]).

Regarding claim 5, Yamada teaches that the number average molecular mass of the cellulose ester is 100,000 ([0110]).

Regarding claim 6, Yamada teaches that the degree of substitution of the cellulose ester by the acetyl group is 2.5 ([0110]) which is within the claimed range of 2.2 through less than 2.9.

Regarding claim 7, for the purposes of examination, "X" is the degree of substitution by the acetyl group as set forth in Applicant's specification. Yamada teaches that the degree of substitution of the cellulose ester by the acetyl group can be 1.8 and the degree of substitution by the propionyl group is 0.8 ([0113]), which means that the degree of substitution by a substituent containing an alkoxysilyl group, Y, can be within the range of up to 0.4, which is within the claimed range of 0 to 1.5, satisfying Formula (A) of Applicant, as well as Formula (B) of Applicant since X + Y = 1.8 + 0.4 = 2.2, which is within the claimed range of 1.0 to 2.9.

Regarding claims 8-9, Yamada teaches that the hydrolyzed polycondensate is formed from a composition that contains tetraethoxysilane ([0110]) which has four hydrolyzable ethoxy groups that can form crosslinks in the polycondensate (cross-linked, [0050]). Hence the transparent film is expected to contain the hydrolyzed polycondensate as a crosslinked polymer, where the cellulose ester and the crosslinked polymer form a semi-interpenetrating polymer network type polymer alloy. Yamada teaches that the crosslinked polymer, or hydrolyzed polycondensate, is present in an amount of preferably in the amount of 10 to 30 percent by mass in the transparent film ([0056]).

Regarding claim 11, Yamada teaches that the transparent film has a positive wavelength dispersion property ([0038]), and hence, since the ratio [$R_0(450)/R_0(600)$] is less than 1 (a value obtained by dividing a retardation within the plane R(600) of the film at wavelength 600 nm by a retardation within the plane R(450) of the film at wavelength 450 nm is more than 1, [0038]), the wavelength of 450 nm is very close to the claimed wavelength of 480 nm, and the wavelength of 600 nm is very close to the claimed wavelength of 590 nm, the ratio of [$R_0(480)/R_0(590)$] is expected to be in the range of less than 1.0, which overlaps the claimed range of not less than 0.8 through 1.0.

Regarding claim 12, Yamada teaches a display substrate wherein a film comprising a metal oxide or metal nitride is formed on at least one of the surfaces of the transparent film for display substrate where the metal oxide or metal nitride film is moisture proof (moisture permeability is effectively reduced, [058]) and a transparent conductive film is formed on the surface opposite to the surface where moisture proof film is formed or on the moisture proof film itself (the layer may be provided on both sides of the film substrate, [0058]).

Regarding claim 13, Yamada teaches that the moisture proof film can be mainly composed of silicon oxide ([0058]).

Regarding claim 14, Yamada teaches that the moisture proof film and the transparent conductive film, as described above, formed by a vacuum evaporation method, a sputtering method or an ion-plating method ([0059]). Even though Yamada fails to teach that the two films are formed by the claimed method, and product by process claims are limited by and defined by the process, determination of patentability

is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113.

Regarding claims 15-17, Yamada teaches a liquid crystal display, or a touch panel or an organic electroluminescence display using the display substrate discussed above (organic EL, [0059]).

6. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Machell as applied to claims 1-3, 5-9, 11-17 above, and further in view of Kakinuma (US 5,840,465).

Yamada, as modified by Machell, teaches a transparent film for display substrate, wherein the transparent film contains a hydrolyzed polycondensate of the cellulose ester and an alkoxysilane, as discussed above. Yamada fails to teach that the transparent film contains an organic crosslinking agent having a plurality of isocyanate groups in an amount of 1 through 20 percent by mass to crosslink the cellulose ester.

However, Yamada teaches that the composition is heated to provide cross-linking ([0050]) which means that the crosslinking can be enhanced by an organic crosslinking agent.

Kakinuma teaches that an organic crosslinking agent having a plurality of isocyanate groups is added to a composition to react with the hydroxyl groups of a hydroxyl group-containing polymer to induce crosslinking (column 5, lines 24-27) in an amount of 0.1 to 20 percent by mass (parts by weight based on 100 parts by weight,

column 13, lines 15-30) which contains the claimed range of 1 through 20 percent. A cellulose ester is a species of hydroxyl group-containing polymer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have added an organic crosslinking agent having a plurality of isocyanate groups in an amount within the range of 1 through 20 percent by mass to the transparent film composition containing cellulose ester of Yamada, in order to obtain the desired amount of crosslinking of the hydroxyl group-containing polymer, as taught by Kakinuma.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Machell as applied to claims 1-3, 5-9, 11-17 above, and further in view of Ota (US 6,866,949).

Yamada, as modified by Machell, teaches the transparent film for display substrate, wherein the transparent film contains a hydrolyzed polycondensate of a cellulose ester and an alkoxysilane, as discussed above. Yamada fails to disclose that the film has a glass-transition temperature that is within a range of 180 degrees Celsius or more, or that it has coefficients of linear expansion in both MD and TD directions within a range of from 5 through 50 ppm/degrees Celsius.

However, Ota teaches that a display substrate requires a glass-transition temperature within a range of 150 degrees Celsius or more (abstract), which contains the claimed range of 180 degrees Celsius or more, and requires a coefficient of linear expansion within a range of 80 ppm/degrees Celsius or less (abstract) in both MD and TD directions, which contains the claimed range of from 5 through 50, for the purpose of

providing the desired dimensional stability during processing or use (substrate film, column 1, lines 13-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the transparent film of Yamada, as modified by Machell, with a glass-transition temperature that is within the range of 180 degrees Celsius or more, and coefficients of linear expansion in both MD and TD directions that are within the range of from 5 through 50 ppm/degrees Celsius, in order to obtain the desired dimensional stability during process and use, as taught by Ota.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (US 2002/0123209) in view of Machell (US 5,219,510).

Yamada teaches a method for manufacturing a transparent film for display substrate (displaying element, [0001]) according to a casting film forming method comprising the steps of: casting the dope ([0111]) containing: a cellulose ester, and no plasticizer (acetate propionate, [0110]) i.e. in a zero amount which is within the claimed range of less than 1 percent, onto a casting support member to form a web (cast onto a stainless steel belt, [0111]). Yamada teaches the step of drawing the web 6 percent (factor of 1.06, [0110]) in the width direction (transverse, [0110]), which is within the claimed range of 3 through 100 percent; and drying the web ([0111]). Yamada fails to teach that the web is also drawn 3 through 100 percent in a conveyance direction.

However, Machell teaches that a transparent film containing a cellulose ester is drawn from 50 to 100 percent (stretch ratio in both directions, column 10, lines 5-17), which is within the claimed range of 3 through 100 percent, in both the width direction

and the conveyance direction (transverse direction and direction of travel of the web, column 10, lines 5-11), for the purpose of providing the desired superior surface properties (column 10, lines 29-45) which include surface smoothness and optical uniformity as well as dimensional stability (column 2, lines 25-32) suited for a transparent optical substrate (photographic film support, column 2, lines 5-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have drawn the transparent film containing cellulose ester of Yamada in both the conveyance direction and the width direction, in order to obtain the desired superior surface properties which include surface smoothness and optical uniformity as well as dimensional stability, suited for a transparent optical substrate, as taught by Machell.

9. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Machell as applied to claim 18 above, and further in view of Gotoh (US 5,820,994).

Regarding claim 19, Yamada, as modified by Machell, teaches the method of manufacturing a transparent film for display substrate, as discussed above. In addition, Yamada teaches that a moisture proof film (moisture permeability is effectively reduced, [058]) and a transparent conductive film are formed on the transparent film (058]). While Yamada teaches a generic method of forming the films by sputtering ([0058]), Yamada fails to specify that it contains the steps of applying a high frequency voltage between opposed electrodes under atmospheric pressure or under approximately atmospheric pressure for a discharge, generating a reactive gas in the plasma state by

the discharge, and exposing the transparent film for display substrate to the reactive gas in the plasma state.

However, Gotoh teaches a method of forming a moisture proof film (water vapor barrier, column 1, lines 15-20, gas barrier layer, column 1, lines 50-55) and a transparent conductive film (layer, column 1, lines 39-40) on a transparent display substrate (column 1, lines 15-30) by sputtering (column 1, lines 50-55, column 5, lines 47-60) comprising the steps of applying a high frequency voltage between opposed electrodes (13.5 MHz to 915 MHz electric power applied to parallel plate electrodes, column 8, lines 9-20) under atmospheric pressure or under approximately atmospheric pressure (to atmospheric pressure, column 8, lines 6-8) for a discharge, generating a reactive gas in the plasma state by the discharge (gas used to generate the plasma, column 8, lines 6-7), and exposing the transparent film for display substrate to the reactive gas in the plasma state (article is exposed to a plasma produced by allowing electric power to flow through electrodes, whereby the metal is converted into the oxide to improve transparency, column 8, lines 1-5, transparent substrate for display, column 1, lines 15-30).

Therefore, since Yamada is silent regarding the specific steps of the method of forming the moisture proof film and the transparent conductive film by sputtering, it would have been obvious and hence necessary to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the steps of applying a high frequency voltage between opposed electrodes under atmospheric pressure or under

approximately atmospheric pressure for a discharge, generating a reactive gas in the plasma state by the discharge, and exposing the transparent film for display substrate to the reactive gas in the plasma state, in the sputtering method of Yamada, in order to form the moisture proof film and transparent conductive film on the transparent film for display substrate, as taught by Gotoh.

Regarding claims 20-21, Gotoh teaches that the frequency of the high frequency voltage can be 13.56 MHz (column 8, lines 19-20) which is within the claimed range of from 100 kHz through 2.5 GHz, or from 100 kHz through 150 MHz. Gotoh teaches that the supply power is in the range from 1 mW/cm^2 to 100 W/cm^2 (column 8, lines 25-30), which contains the claimed range of from 1 W/cm^2 through 50 W/cm^2, for the purpose of generating the desired reactive gas in the plasma state (column 8, lines 25-33).

Response to Arguments

10. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks, can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/

Sow-Fun Hon

/KEITH D. HENDRICKS/
Supervisory Patent Examiner, Art Unit 1794